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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/691,029      | 10/22/2003  | Kin P. Cheung        | 879.1.004           | 7559             |

7590 01/21/2005  
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| EXAMINER |
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HOANG, QUOC DINH

|          |              |
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| ART UNIT | PAPER NUMBER |
|----------|--------------|

2818

DATE MAILED: 01/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                        |  |                     |  |
|------------------------------|------------------------|--|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> |  | <b>Applicant(s)</b> |  |
|                              | 10/691,029             |  | CHEUNG, KIN P.      |  |
|                              | <b>Examiner</b>        |  | <b>Art Unit</b>     |  |
|                              | Quoc D Hoang           |  | 2818                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 November 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 18 and 19 is/are allowed.
- 6) ☒ Claim(s) 1-4,9 and 17 is/are rejected.
- 7) ☒ Claim(s) 5-8 and 10-16 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>10/22/2003</u> | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Election/Restrictions***

1. Applicant's election without traverse of Group II (claims 1-20) in the reply filed on 11/12/2004 is acknowledged.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claim 1, 2, 9 and 17 are rejected under 35 U.S.C. 102(e) as being anticipated by Gueissaz (U.S. Pat No. 6,454,160).

Regarding claim 1, Gueissaz teaches a process for packaging a microscopic structure, said process comprising the steps of: assembling a microscopic structure 6 substantially enclosed within a cavity defined by a shell 16 having at least one throughhole 10 extending therethrough in communication with the cavity (col. 11, lines 20-67 and Fig. 13) ; and applying a molten material 18 to fill the at least one throughhole 10 wherein the molten material 18 subsequently solidifies to yield a hermetic pressure seal (col. 12, lines 1-8 and Fig. 15).

Regarding claim 2, Gueissaz teaches wherein assembling step further comprises the steps of: forming the microscopic structure 6 on a substrate 1 (col. 11, lines 20-67

and Fig. 10); depositing a capping layer 7 on said microscopic structure 6 (col. 11, lines 20-67 and Fig. 10); depositing a support layer 16 on said capping layer 7 (col. 11, lines 20-67 and Fig. 11); forming at least one hole through 10 the support layer in communication with the capping layer 7 (col. 11, lines 20-67 and Fig. 11); and removing the capping layer 7 through the at least one hole 10 to yield the cavity defined by said support layer 16 providing said shell 16 (col. 11, lines 20-67 and Fig. 13).

Regarding claim 9, Gueissaz teaches wherein the microscopic structure 6 forms at least part of a MEMS device (col. 1, lines 15-25).

Regarding claim 17, Gueissaz teaches wherein the shell 9 has a higher melting point than the melting point of the molten material 13 (col. 9, lines 60-67 and Fig. 5c).

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gueissaz (U.S. Pat No. 6,454,160) in view of Boroson et al (U.S. Pat No. 6,470,594) ("Boroson").

Gueissaz does not teach wherein the shell material is a nitride material.

However, Boroson teaches wherein the shell material 30 is a nitride material (col. 9, lines 10-20 and Fig. 6B). At the time of the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the nitride shell material

teaching of Boroson with Davis's MEMS device, because it would have increased the melt temperature of the shell as taught by Boroson et al, column 9, lines 1-56.

***Allowable Subject Matter***

6. Claims 18 and 19 are allowed.

7. Claims 5-8 and 10-16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The following is a statement of reasons for the indication of allowable subject matter: Claim 6 recite, inter alia, wherein the applying step further comprises the steps of: depositing a meltable material onto at least an exterior portion of the shell proximate the at least one hole; and selectively heating the meltable material for a sufficient time in an area proximate to and surrounding said at least one throughhole or via to a temperature sufficient to generate the molten material, whereby the molten material flows partially into and blocks the span of the at least one hole prior to cooling and solidification to yield the hermetic pressure seal. The art of record does not disclose or anticipate the limitation in combination with other claim element nor would it be obvious to modify the art of record so as to form a device including the above limitation.

9. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Conclusion***


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10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quoc Hoang whose telephone number is (703) 306-5795. The examiner can normally be reached on Monday-Friday from 8.00 AM to 5.00 PM.

If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (703) 308-4910. The fax phone numbers of the organization where this application or proceeding is assigned are (703) 746-4016 for regular communications and (703) 746-4016 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

  
Quoc Hoang  
Patent examiner/AU 2818

  
David Nelms  
Supervisory Patent Examiner  
Technology Center 2800